

thermostat, for which Sligh has given an equation. From this equation it follows that the length of stroke usually employed, 20 or more times the backlash, makes the variation from day to day much greater than in the previously discussed type. It also follows, however, that the error can be diminished by shortening the stroke, by using an excess of heating power, and by enlarging the bulb. How far these expedients can be carried without introducing irregularity of action has not yet been worked out.

A third means for increasing precision is to put the heater very near the regulator bulb. This is like the Gouy regulator in making the oscillations of the heating current so rapid and small that the oscillations of the bath become negligible. It is well known, and is often hailed as a complete solution of the problem of temperature regulation. What is not nearly so well known is that this method is also like the Gouy in giving relatively large variations from day to day. This is because the bulb is intermittently bathed in water considerably warmer than the rest of the bath. Hence as the amount of heat required varies, the relative temperature of bulb and bath, and therefore, the absolute temperature of the bath, varies also.

BOTANY.—*A new genus of Leguminosae.* C. V. PIPER, Bureau of Plant Industry.¹

In a study of the genus *Canavalia*, to which the cultivated jack bean and sword bean belong, it has become evident that the generic characters will need some revision. Among the specimens referred to this genus in the U. S. National Herbarium was found the new species herewith described, diverging so much from any other as to necessitate the proposal of a new genus for its reception. Superficially, it has much resemblance to *Canavalia*, but the floral characters indicate that its relationship is much closer to *Dolichos*.

Monoplegma, gen. nov.

Leaves palmately trifoliolate; leaflets entire, 3-nerved from the base the two lateral nerves nearly as large as the midrib; flowers in racemes,

¹ Received July 21, 1920.

each pedicel with prominent glands at the base; calyx campanulate, 2-lipped, the upper lip broad, emarginate, as long as the tube, the lower lip with 3 broad ovate lobes nearly as long as the upper lip, the median lobe smallest; standard orbicular, emarginate, biauriculate at base, short-unguiculate, a narrow thick gland near the middle of the petal; wings spatulate, unguiculate, obtuse and hooded at apex, without median auricle; keel geniculate, unguiculate, blunt at apex, as long as but broader than the wings; stamens diadelphous, the vexillar one free; anthers small; style hairy on the inner side; stigma lanceoloid, terminal; pod large, woody, 1- or 2-seeded, a small longitudinal ridge on each valve very near the ventral suture, the inner layer of the pod not separating at maturity; seed globose, the narrow linear hilum covered with spongy tissue and extending three-fifths of the circumference.

In the Englerian classification this plant would fall in the group Papilionatae-Phaseoleae-Phaseolinae.

Monoplegma sphaerospermum Piper, sp. nov.

Probably a tall climbing vine; stems woody, terete, thinly strigillose when young; stipules persisting, oblong, acutish, strongly and prominently 5-7 nerved, 3-4 mm. long; petioles terete, shorter than the leaflets, sparsely pilose, especially at base; stipels like the stipules but longer and narrower, curved; petiolules fleshy, sparsely pubescent; leaflets very thin, narrowly ovate, conspicuously acuminate, but the acumination often blunt, rounded at base, 3-nerved from the base, reticulate-venose, very sparsely strigillose on both surfaces, 6-10 cm. long; peduncles densely puberulent; racemes 15-30 cm. long in fruit, apparently 10-20-flowered; pedicel as long as the calyx; calyx ciliolate; upper calyx lip emarginate, 7 mm. long; lower lip with 3 broadly ovate, obtuse lobes, the lateral ones slightly larger and nearly as long as the upper calyx-lip; corolla (not fully open) 10 mm. long; standard orbicular, notched at apex, short-clawed at base between two narrow basal auricles, a narrow thick swelling near the middle; wings spatulate, obtuse, hooded at apex, without a lobe in the middle; keel as long as the wings, blunt at apex, sharply geniculate in the middle; mature pods oblong, woody, each valve with a single longitudinal ridge very close to the ventral suture, the dorsal suture prominent and acute, glabrous but at first strigillose, 5-9 cm. long, 3-4 cm. broad, tipped with a straight beak, 6 mm. long; seeds usually 2 in each pod, nearly spherical, black, somewhat shiny, the longest diameter 2 cm.; hilum narrowly linear, white, somewhat spongy, extending three-fifths of the circumference.

Type in the U. S. National Herbarium, no. 577,636, collected in thickets at Las Vueltas, Tucurrique, Costa Rica, November, 1898 (flowers), and April, 1899 (fruit), by A. Tonduz (no. 12,743).

OTHER SPECIMENS EXAMINED:

COSTA RICA: Baru, Pacific slope, January 28, 1898, *Pittier* 11,958.